

REMARKS

Claims 2, 3, 5, 9, 10, 12, 15, 17-18, 20, 22, 23, and 25-42 remain pending in the application.

Claim Amendments

By this amendment, claims 16, 19, 21 and 24 are cancelled. Claims 2, 3, 9, 10 and 20 are amended. Editorial revisions are made in claims 10 and 20. Claims 2 and 9 are amended, support for which resides at page 13, line 19 to page 14, line 5 of the specification, as well as page 34, lines 3-8. The limitations of cancelled claims 16 and 21 are added to claims 3 and 10, respectively.

New claims 29-42 are added. Support for new claims 29 and 31 resides at page 15, line 19 of the specification. Support for new claims 30 and 32 resides at pages 16-17. Support for new claims 33, 35, 39 and 41 resides at page 25, line 5, as well as at claims 5 and 12. Support for new claims 34, 40 and 42 resides at page 25, lines 4-17, as well as at claims 5 and 12. New claim 37 combines the limitations of claim 3 and allowed claim 27. New claim 38 combines the limitations of claim 10 and allowed claim 28. No new matter is added by this amendment.

Allowable Subject Matter

Applicants acknowledge with thanks the indication of allowable subject matter of claims 5, 12, 16-17, 19, 21, 22, 24, 26, and 28. The limitations of allowed claims 16 and 21 are added to claims 3 and 10, respectively. Claims 3 and 10 should accordingly be indicated as being allowable, together with dependent claims 5, 12, 17, 22, 26, 28, 33, 34, 35 and 36. New independent claims 37 and 38 include the limitations of allowed claims 27 and 28, respectively. Claims 37-42 should accordingly also be found to be allowable. Further, in view of the above amendments and the following remarks, it is believed that all other pending claims should be found to be allowable.

Applicants' Claimed Invention

Applicants' invention is directed to a lithographic printing original plate having a photosensitive layer on a substrate directly or on another layer provided thereon. The photosensitive layer is made of a crosslinked polymer having ink repellency, wherein the photosensitive layer is a water-insoluble photosensitive hydrophilic resin layer obtained by crosslinking a photosensitive composition comprising a hydrophilic polymer, a crosslinking agent, a light absorbing compound and a hydrophobic polymer, and having properties wherein the photosensitive layer is changed from ink-repellant

to ink-receptive by irradiation with light. Preferably, the photosensitive hydrophilic resin layer has a phase-separation structure comprised of a hydrophilic polymer phase and a hydrophobic polymer phase.

A lithographic printing plate of the present invention requires a fountain solution, and its non-image area is covered with the fountain solution and thereby repels ink. The photosensitive layer of the claimed invention needs to be hydrophilic and insoluble in water and the photosensitive layer is changed from hydrophilic to ink-receptive as described at page 13, line 19 to page 14, line 5 of the specification.

A lithographic printing original plate or a lithographic printing plate of the present invention has the characteristic that a photosensitive layer is made of a crosslinked and water-insoluble photosensitive hydrophilic resin layer. This layer has a phase separation structure consisting of a hydrophilic polymer phase and a hydrophobic polymer phase, or comprises a hydrophobic polymer before irradiation with a light as defined by claims 2, 3, 9 and 10.

Due to the above characteristics, the lithographic printing plate of the present invention does not need development and wiping off, and exhibits excellent hydrophilic and water-resisting properties, ink repellency, sensitivity, resolution

and printability as described at page 50, lines 9-12 of the specification.

Applicants' invention is neither disclosed nor suggested by the cited prior art.

Rejection under 35 USC 102(e) over Verschueren et al

Claims 2-3, 9-10, 15, 18, 20, 23, 25 and 27 stand rejected under 35 USC 102(e) as being anticipated by Verschueren et al. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

Verschueren et al is directed to a heat-sensitive material for making lithographic printing plates having on a lithographic support an image-forming layer including a hydrophilic binder, a crosslinking agent for the hydrophilic binder, metal oxide particles with a mean diameter of at least 100 nm, and dispersed hydrophobic thermoplastic polymer particles.

However as discussed in the previous response, the water-solubility of the photosensitive layer of the lithographic printing plate of Verschueren is unclear and development is still required by dissolving the unexposed areas of the photosensitive layer with a fountain solution during printing. Therefore, Verschueren fails to anticipate the present invention.

By contrast, the photosensitive layer of the lithographic printing original plate of applicants' invention is cross-linked and water-insoluble before being irradiated with light as provided for in claims 2 and 3. In view of such characteristics, the lithographic printing original plate is without need of development by dissolving the unexposed areas of the photosensitive layer with a fountain solution during printing.

In this regard, applicants again note that EP 770494A, which is the corresponding application of Verschueren, describes at Example 1 a photosensitive composition comprised of titanium dioxide, polyvinyl alcohol (hydrophilic polymer), and tetramethylorthosilicate (cross-linking agent) which was dried at 30°C, and subsequently hardened (cross-linked) at a temperature of 57 °C for one week.

Under such conditions, development is still needed by dissolving the unexposed areas of the photosensitive layer with a fountain solution as described in claim 1 of EP '494. The composition of Example 3 of EP '494 is the same as that of Verschueren except for the non-incorporation of hydrophobic thermoplastic polymer particles, such that the cross-linking of Verschueren appears to be less severe than that of EP '494. In view of the above, applicants still maintain that the photosensitive layer of Verschueren is water-soluble, as opposed to water-insoluble as required by applicants.

The rejection is thus without basis and should be withdrawn.

Rejection under 35 USC 102(e) over Leon et al

Claims 2, 9, 15, 18, 20 and 23 stand rejected under 35 USC 102(e) as being anticipated by Leon et al. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

Leon discloses an imaging member comprising a support having a hydrophilic imaging layer comprised of a hydrophilic heat-sensitive cross-linked vinyl polymer which is thermally switchable. The polymer comprises repeating units of organoonium groups wherein post-imaging wet processing of the imaging member is not required (see claim 1).

Leon teaches that the hydrophilic resin itself in the photosensitive layer is rendered oleophilic with irradiation of light.

However, Leon never teaches the present invention having a phase separation structure consisting of a hydrophilic polymer phase and a hydrophobic polymer phase or which comprises a hydrophobic polymer before irradiation with a light.

Leon is similar to the claimed invention only with respect to the aspect that exposed areas are rendered more oleophilic than the unexposed areas by heat provided by the imagewise

exposing (see column 3, lines 24-26). However, the reference teaches that the hydrophilic resin itself in the photosensitive layer is rendered oleophilic with irradiation of light. Moreover, Leon does not make reference to the presence of a hydrophobic polymer.

The rejection is thus without basis and should be withdrawn.

Rejection under 35 USC 102(e) over Van Damme et al

Claims 2, 9, 15, 18, 20 and 23 stand rejected under 35 USC 102(e) as being anticipated by Van Damme et al. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

Van Damme et al is directed to a heat-sensitive imaging element for providing a lithographic printing plate. The element is comprised of a support and as a top layer a heat switchable image forming layer comprising a hardened hydrophilic binder and a heat switchable polymer wherein the top layer or a layer adjacent to the top layer comprises a compound capable of converting light into heat.

Van Damme teaches that the heat switchable polymer itself is converted to being oleophilic with heat.

Van Damme never teaches the present invention having a phase separation structure consisting of a hydrophilic polymer

phase and a hydrophobic polymer phase or which comprises a hydrophobic polymer before irradiation with a light.

Van Damme et al is silent with respect to the existence of a phase separation structure consisting of a hydrophilic polymer phase and a hydrophobic polymer phase of the present invention. The reference discloses only that a portion of the heat switchable polymer, not an island phase of the island-sea structure of the present invention, is converted to being oleophilic with heat.

The heat switchable polymer itself is converted to being oleophilic with heat, so that there is no need for the presence of the hydrophobic polymer phase of the present invention - further, the hydrophobic polymer of Van Damme et al is not rendered oleophilic.

The rejection is thus without basis and should be withdrawn.

In view of the above, the application is believed to be in condition for allowance and an early indication of same is earnestly solicited.

A check in the amount of \$110.00 is attached for the requested one month extension of time.

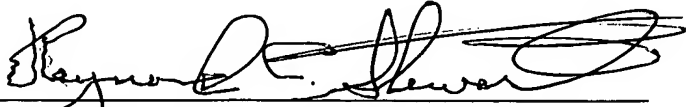
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any

additional fees required under 37 C.F.R. §§ 1.16 or 1.17;
particularly, extension of time fees.

Very truly yours,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By

A handwritten signature in black ink, appearing to read "Raymond C. Stewart", written over a horizontal line.

Raymond C. Stewart

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